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Hydrometeorological Conditions Must Be Considered  
During Operational Training

by

Engineer Lieutenant Colonel V. Shmakov

The comprehensive consideration of hydrometeorological data is, as is known, an indispensable factor in the conduct of successful combat operations. Therefore, in the training of generals and officers, proper attention must be devoted to the study and forecasting of hydrometeorological conditions and to the ability to analyze and use the resulting data. Unfortunately, during the training of some combined-arms staffs, this is not always done.

To confirm this, I would like to cite a few facts observed while participating in many command-staff exercises, war games on maps and group exercises. In a number of cases, for example, when conducting war games and group exercises on maps, the actual conditions of terrain negotiability resulting from hydrometeorological factors are not considered: the pace of the offensive and the march speed for troops are determined equally for all times of the year, including periods of muddy roads, snowdrifts, or other inclement weather conditions.

During the conduct of group exercises and when solving "short problems" there are cases in which much thought is given to preparing maps and not to the real essence of the matter. And there are instances in which beautiful designating arrows are used to mark the troop offensive axes across marshes and other places which are difficult to cross, while disregarding the existing hydrographic system and its hydrometeorological conditions.

Actual hydrometeorological conditions, and the forecasting of them, are not given proper consideration when conducting command-staff exercises and exercises with troops in the field. For example, in February 1966, an exercise with two tank large units was conducted in the Ukraine. A 300-kilometer march and extensive use of aviation and airborne landings were planned as part of the exercise. On the second day, some warm, moist air from the Atlantic moved into the exercise area. Due to advection\*

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\* Advection -- a horizontal transfer of air; it affects the distribution of heat and moisture in the air. The development of weather conditions is essentially governed by advection.

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in the surface layer, a dense fog set in which did not dissipate even during the day. The snow began to melt and roads became impassable. Air operations were ruled out altogether (during the exercise not a single helicopter or plane took to the air). The troop march rates were severely reduced. Even individual light vehicles traveled along asphalt roads at night at no more than 15 to 20 kilometers per hour. All of this had an adverse effect on the conduct of the exercise.

The prediction of hydrometeorological conditions for some long time period, for example, from the moment of the preparation of the exercise right up to its completion, is unquestionably difficult. Even daily weather forecasts and those in the transitional time of the year and in areas with changeable weather conditions sometimes prove to be inaccurate. This makes it all the more necessary to conduct a detailed analysis of actual hydrometeorological conditions and possible changes thereof when formulating exercises, and to be prepared, during the exercise, to refine its plan with minimal impairment to the working out of training problems.

It is also possible to cite examples in which mild hydrometeorological conditions are specifically chosen for troop exercises. Several other oversimplifications are also permitted.

Thus, in working out problems of moving troops to our western borders, the average wind direction is often taken as from 315 to 45 degrees (the northern quadrant). This oversimplifies the situation regarding radiation, facilitates the calculation and forecasting thereof, and does not have much effect on the advancing troops. But calculations of the average monthly and yearly values for average wind vector and velocity show that they will differ for each month. The characteristic yearly wind vector for Central Europe and adjacent areas as a whole is 270 to 280 degrees. However, in the formulation and conduct of war games, such a vector is not used as a rule, since it greatly complicates the situation. In this case, the radioactive fallout pattern will be practically parallel to the troop movement routes. But if the fallout pattern of the cloud coincides with the march route, then troops will receive inadmissible doses of radiation. In order to avoid this, previously marked out, reconnoitered and prepared routes must be changed and others then found, reconnoitered and prepared.

To permit such simulations to be made will naturally have a negative effect on the training of staffs and will lead to an incorrect understanding of the role and place of hydrometeorological support to troops in modern armed combat. The simulated hydrometeorological data which are used during war games and map exercises are taken as the real

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conditions by the participants, who remember them and are thus left with a false conception of the real nature of these conditions in a particular theater of military operations. And this at a time when a combined-arms staff, which prepares all calculations and proposals necessary for making decisions and for planning and supporting the organization and conduct of combat operations, is primarily interested in the most complete, timely and high quality hydrometeorological support.

On the basis of what has been said, the conclusion suggests itself that no hydrometeorological simulations can be tolerated in operational training. Exercises with troops, command-staff exercises, war games and other training methods on maps must be conducted under real conditions of terrain and weather, and must use actual hydrometeorological data or else give the average hydrometeorological characteristics for a given area and time of year.

It should be noted in conclusion that the sanctioning of such simulations is explained, in our opinion, by the fact that combined-arms staff officers are insufficiently trained in these matters. In no higher military educational institution program, other than those dealing with aviation and missiles, is proper attention given to explaining the essence and content of hydrometeorological support. In academic formulations which are original standards for combined-arms staffs, the questions of hydrometeorological support are either totally ignored or are examined superficially and do not meet the requirements of modern methods for conducting armed combat.

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